CLAIMS

What is claimed is:

1. A calibrating body, which consists at least in part of a carbon fiber composite body, wherein the composite body is formed from a porous material from a carbon-containing matrix, into which carbon fibers are embedded, which is thickened by fluid infiltration of Si, which is essentially converted by reaction with carbon to SiC, wherein the overall portion of Si and SiC is a maximum of 60% by volume, and wherein the carbon fibers have a minimum length of 3 mm.

2. Calibrating body according to claim 1, wherein in the composite body the portion of free Si is < 10% by volume.

3. Calibrating body according to claim 2, wherein in the composite body the portion of free Si is < 1% by volume.

4. Calibrating body according to claim 1, wherein in the composite body the matrix components have a maximum grain size of 100 μm.

5. Calibrating body according to claim 1, wherein the open porosity of the composite body is < 5% by volume.

6. Calibrating body according to claim 1, wherein the composite body contains evenly distributed additives for adjusting the elongation behavior.

7. Calibrating body according to claim 6, wherein the additives are in powder form.

8. Calibrating body according to claim 7, wherein the additives are carbon powder.

9. Calibrating body according to claim 7, wherein the additives are SiC powder.

10. Calibrating body according to claim 1, wherein in the composite body the carbon fibers are in the form of mats.

11. Calibrating body according to claim 10, wherein the mats are in a form selected from the group consisting of woven and knitted.

12. Calibrating body according to claim 10, wherein the mats extend in the x-y plane directions, and are stacked on top of one another in the z-direction, with the x-, y- and z-directions forming a rectangular coordinate system.

13. Calibrating body according to claim 12, wherein the mats in their structure and layout in the z-direction are placed symmetric to a central plane.

14. Calibrating body according to claim 13, wherein the mat placement exhibits an orthotropic structure.

15. Calibrating body according to claim 10, wherein the mats are arranged in a quasi-isotropic structure.

16. Calibrating body according to claim 1, wherein in the composite body, the fibers are arrayed two-dimensionally.

17. Calibrating body according to claim 1, wherein the composite body has its internal stresses minimized through thermal aging.

18. Calibrating body according to claim 17, wherein the thermal aging takes place in a temperature range between +100°C and -100°C.

19. Calibrating body according to claim 17, wherein the thermal aging is done in a number of cycles between 1 and 5.

20. Calibrating body according to claim 1, wherein the composite body exhibits a carbon content of 76% by volume, an SiC content of about 17% by volume, a free Si content of about 5% by volume, and an open porosity of about 2% by volume.

21. The calibrating body according to claim 1, formed as a calibrating instrument selected from the group consisting of an end gauge, a precision gauge block, a standard measure, a standard of length, a linear measurement device, a straightedge, a ruler, an angle measuring device and a coordinate measuring device.